(12) UK Patent Application (19) GB (11) 2 365 683 (13) A

(43) Date of A Publication 20.02.2002

(21) Application No 0009820.2

(22) Date of Filing 25.04.2000

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(51) INT CL[7]
H04Q 7/20 , G08B 1/08 , G08C 21/00 , H04Q 7/00

(52) UK CL (Edition T)
H4L LRPLS

(56) Documents Cited
WO 95/35634 A
WO 00/44184 A
US 6104295 A
US 6057758 A
US 6032127 A
US 6011487 A
US 5214410 A
A WAP (WIRELESS APPLICATION PROTOCOL) MOBILE PHONE
WPI ABSTRACT ACCESSION NO.1995-149241 [20] & FR 002711001 A (PACCHIANI) 14.04.1995

(58) Field of Search
UK CL (Edition S) H4L LCX LRPLR LRPLS LRPMX
ONLINE: WPI, EPODOC, JAPIO

(54) Abstract Title

A person or object locating and personal information system

(57) A person or object locating and personal information system operates to provide an approximate position of a person or object within the system's range and also provide an information service to the person being tracked. The systems range is governed by the size of the cellular positioning network(s).

The cellular positioning network(s) determines the location of the electronic tracking devices (These devices being physically associated with the tracked person or object) and communicates this information to the computer(s) or computer network(s) running the computer software program(s) this information is collated, processed, stored, distributed and displayed as required by the user(s).

An information service provider(s) supply the personal information display and interface units with information relevant to the user. This information could be controlled be the user or automated.

The system may be useful in airports to locate baggage or passengers, locating patients in hospitals, locating shoppers in supermarkets or could be applied to many populated social environments.

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A PERSON OR OBJECT LOCATING AND PERSONAL INFORMATION SYSTEM

Electronic location systems are well known. Generally systems operate to provide an approximate position of an object within the system's range; this information can then be utilised by the system user.

There are particular systems that require the tracked object to be associated with an element of the location system.

Existing location systems exhibit some of the following features: -

Relevant positioning resolution,

The ability to locate many thousands of people or objects,

Operation inside structures, beneath the ground or in the sea,

Capability of locating moving people or objects,

Economically viable.

However, no current system meets all of the above and can provide the users with a personal information and system.

According to the present invention there is provided a person or object locating and personal information system. The present invention comprises of a computer(s) or computer network(s), computer software program(s), a cellular positioning network(s), a number of electronic tracking devices associated with the tracked person or object, a number of personal information display and interface units and an information service provider(s). The tracking devices may or may not be physically integrated with the personal passenger information units.

A specific embodiment of the invention will now be described by way of example. The example describes the invention being applied in an airport environment.

The airport or area in which tracking is required is divided up into many smaller areas, associated with each area is a node (cell) of the cellular positioning network.

Within the airport or area in which the system operates there are people (passengers or staff) and/or objects (baggage or freight) that are required to be located. Associated with the people (passengers) and/or objects (baggage or freight) are uniquely coded tracking devices (tag), one device per person or object.

Upon a request for the location of a person or object (this request may be either software driven or by the user/operator) the computer(s) or computer network(s) determines the unique identity code relevant to the person or object (the determination of the identity code is either entered into the system by the user, found in the systems database, or calculated via mathematical formula). This data is then communicated via a network of suitable means to the cells.

The cells transmit this unique code (this code is only relevant to one tag in the system) via suitable means e.g. UHF part of the electromagnetic spectrum. This code is received by all of the tags but only the tag that receives an appropriately coded signal will respond.

The response is a transmission, via suitable means of it's own identity code, only local cell(s) will receive this signal due to the fact that the tag transmits at low power and thus the signal does not travel very far. Alternatively the tag would transmit if instructed by the person or object with which it is associated for example if the passenger needs assistance.

The received tag data is communicated via a network of suitable means to a computer(s) or computer network(s) where the data is processed.

The position is determined in two ways i.) Reception of tag signal at one or more cells means the tag is within the operating range of the receiving cell(s) and/or ii.) The tag's signal strength is measured at the receiving cell(s) to determine an approximate range.

This position information is then stored and/or displayed by a suitable means. This information can then be utilised by the user/operator of the system to improve efficiency; in the case of an airport reduce the number of delayed departing flights due to late or lost passengers or baggage.

Together with the locating system there maybe provided a personal information system. This would take the form of a hand held interface unit and display or a body worn unit with a head worn viewing device. This would provide visual and/or audio information which could be passive or interactive e.g. films or Internet as appropriate to the user (passenger). The information required would be transmitted via suitable means and/or stored within the unit itself.

It is also possible that the information gained by the system could be accessible via the Internet.

This is a non-exhaustive example and the system or part system could be applied to many situations. Here follows a brief description of the invention applied to some different environments.

Hospital.

The present invention could also be applied to a hospital environment to locate patients and/or staff and could provide them with visual and/or audio information that could be passive or interactive.

Supermarket

The present invention could also be applied to a supermarket or any large shopping environment to locate shoppers and/or staff and could provide them with visual and/or audio information that could be passive or interactive e.g. location of a product or display of special offer. The information on the route that shoppers take through a supermarket or any large shop would be useful, e.g. to determine optimal product layout.

It is conceivable that the present invention could be applied to many populated social environments, e.g. exhibitions/exhibition centres, museums, sports centres, manufacturing plants, offices, shopping centres etc.

CLAIMS

1 A person or object locating and personal information system comprising a computer(s) or computer network(s), computer software program(s), a cellular positioning network(s), a number of electronic tracking devices associated with the tracked person or object, a number of personal information display and interface units and an information service provider(s). The tracking devices may or may not be physically integrated with the personal passenger information units.

2 A person or object locating and personal information system as claimed in claim 1 wherein the cellular positioning network(s) communicate with the electronic tracking devices via wireless electromagnetic means.

3 A person or object locating and personal information system as claimed in claim 1 wherein personal information display and interface units communicate with the information service provider(s) via an electronic means.

4 A person or object locating and personal information system as claimed in claim 1 wherein the electronic tracking device(s) can be triggered by the user(s) to invoke an action within the person or object locating and personal information system.

5 A person or object locating and personal information system as claimed in claim 1 wherein the users can command the cellular positioning network(s) to communicate with one or many electronic tracking device(s) and invoke an action other than for location purposes.

6 A person or object locating and personal information system as claimed in claim 1 wherein the users can control the information which they receive on the personal information display and interface units.

7 A person or object locating and personal information system substantially as described herein.

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Application No: GB 0009820.2
Claims searched: 1-6
Examiner: Chris Archer
Date of search: 4 December 2001

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): H4L (LRPLS, LRPLR, LRPMX, LCX)

Int Cl (Ed.7):

Other: ONLINE: WPI, EPODOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	WO 00/44184 A	(NEOPOINT) see whole document	1-6
X	WO 95/35634 A	(PRICE) see in particular page 10 line 35 to page 11 line 4	1 at least
X	US 6104295	(GAISSER) see whole document	1 at least
X	US 6057758	(DEMPSEY) see in particular column 7 line 20 to column 9 line 9.	1-6
X	US 6032127	(SCHKOLNICK) see in particular column 9 line 66 to column 10 line 47	1-6
X	US 6011487	(PLOCHER) see in particular the abstract	1 at least
X	US 5214410	(VERSTER) see whole document	1-6
X	A WAP (wireless application protocol) mobile phone		1-6
X	WPI abstract accession no. 1995-149241 [20] & FR 2711001 A (PACCHIANI) 14.04.1995 (see abstract)		1 at least

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.